

Cold War Experiences from the ‘other’ side, Part 2

(As published in The Oak Ridger’s Historically Speaking column the week of April 6, 2020)

Bob Schultz continues his story of life experiences testing nuclear weapons. I am pleased he stopped me and asked if I might be interested in his life’s work. I have learned to never be surprised when someone asks me to listen to their story. It is a perk of writing *Historically Speaking* that I thoroughly enjoy and look forward to with anticipation.

I am convinced we Oak Ridger’s all too often take for granted the amazing people who live among us. We have everything from, quite literally, the most intelligent scientists in the world, to people who have traveled the world over and have such outstanding experiences they could share with us. We just need to show the least bit of interest and I have found they are more than ready to share. What a treat! Try it! You will literally be amazed at what you will learn.

Now for Bob Schultz continuing saga:

My next assignment, even before the fallout from Little Feller was settled, was out to Johnston Island (Johnston Atoll). Johnston Island is located in the Pacific Ocean, north of the equator, about 900 miles from Hawaii. The Johnston Island part of Operation Dominic was called Operation Fishbowl. We conducted the high-altitude test explosions using several launch vehicles. The prime vehicle for really high-altitude tests was the Thor missile.

The Thor missile had been well tested but when the units were used for our tests, they carried three instrumentation pods, each about the size of an old Volkswagen ‘bug’. The pods were hung around the outer barrel of the missile. The first two Operation Fishbowl tests were aborted for various missile related reasons.

The third attempt, called the Starfish Prime test was successful. This test exploded a very large (1.44 megaton) bomb at an altitude of 250 miles above the ocean surface. ‘Starfish Prime’ caused an electromagnetic pulse (EMP) far larger than expected thus it drove much of the instrumentation off scale so reliable measurements were not captured. The EMP caused electrical damage in Hawaii, knocking out 300 street lights, setting off many burglar alarms, and damaging telephone company equipment.

Many instrumentation rockets were launched and a large number of military ships and airplanes were used in supporting the event. We also had two uninvited Soviet Union observation ships in the area. The experience of working/observing an explosion of this magnitude is an indescribable happening.

First, all of the nonessential personnel are taken off the island, by helicopter, and placed on ships hours in advance of the upcoming launch and test. The ships were taken out to sea well away from the island. The people considered as “essential” to the operation were huddled into underground bunkers.

In our bunker, we were able to place mirrors outside in front of our open ‘blast’ doors so we could watch the launch of the Thor missile. At the count of “Zero” the missile was ignited - as the Thor is a liquid fueled missile it seemed like the liftoff from the launch pad was excruciatingly slow. As soon as the missile had cleared the launchpad we all moved outside and waited for the explosion – the nuclear warhead detonated 13 minutes and 41 seconds after liftoff.

One does not look towards the explosion initially as significant retinal damage will occur (like looking directly at the sun during the solar eclipse – only more seriously). We were all issued very thick didymium goggles and instructed to look down at the ground when explosion occurred, then slowly look up toward the light.

Once you could comfortably look directly at the fireball then look back down, take off your glasses and again slowly look up again. This procedure took several minutes. As the overbearing light faded bright

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auroras were observed over a very large area of the Pacific Ocean – they were absolutely beautiful but really indescribable.

Between the EMP and the radiation zone caused by Starfish Prime all of our satellites, the United Kingdom satellites and the Russian satellites failed. All of them!

The last test of this series, which was also the last above ground test conducted by the US, was called Tighrope. It was a small, 5 kiloton, device put into space at an altitude of only 13 miles by a Nike Hercules missile. We had been used to observing the large devices at reasonably high altitudes with little notice of thermal affects or shock waves.

As usual, as soon as the Nike left its launchpad we all hustled outside to observe the explosion. As the Nike is a solid fueled rocket it took off fast and reached altitude quite rapidly. I was standing outside leaning on one of the trailer mounted Thor missile instrumentation pods complete with my didymium goggles on when the detonation occurred.

As the light started to get bright, I also felt an intense heat on my neck and back – in a panic move I dove under the instrumentation pod – wondering if someone had miscalculated the yield. After laying there for a few seconds and as the bright light subsided, all of a sudden, I felt embarrassed. I just knew that all of my coworkers were out there looking at me laying on the ground under the pod and laughing.

As I crawled out from under the pod I ripped my glasses off and to my amazement everyone had either dove back into the bunker or under a vehicle. We had all panicked together – we should have all realized that the thermal and shock affects would be significantly more intense when standing 13 miles from the explosion as opposed to standing 100 miles away; especially when you take into consideration the change in air density.

By the way, Johnson Island is an atoll a mile and a quarter long and a quarter of a mile wide – totally covered with runways, and missile launch pads with a few old building (mess hall and sleeping quarters) stuffed in the cracks. It is the most remote atoll in the Pacific area. There were about 400 residents on the Island both military and civilians at the time of the Fishbowl test series. The standard line about the population of the atoll while we were there was – “there is a girl behind every tree on the Island – the problem was that there were no trees on the island!” It has been totally shut down since 2007.

The following spring, I left the Army and the Nuclear Defense Laboratory and stepped into the private sector as a Radiochemist – not as a Tactical Physicist. I continued in the nuclear weapons testing arena, for several years.

Since the 1963 Test Ban Treaty was being honored most of my efforts were directed toward underground nuclear test detection. The program I worked on was called “Vela Cloud Gap”. It was a program run by the United States Department of Defense and the Arms Control and Disarmament Agency from 1963 to 1967.

The purpose was to “test the technical feasibility of potential arms control and disarmament measures”. Arms control agreements discussed between the United States and the Soviet Union would involve on-site inspections, and such techniques – to detect secret underground testing. These technique evaluation tests were carried out at the Nevada Test Site, Colorado, and Mississippi & Amchitka Alaska. These are all stories and experiences unto themselves.

Maybe Bob Schultz will write another *Historically Speaking* series about the “technique evaluation tests” in the Nevada Test Site, Colorado, Mississippi and Amchitka, Alaska?

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Thanks Bob, what a tremendous life you have lived!



Bob Schultz, American Museum of Science and Energy Volunteer, since 1999

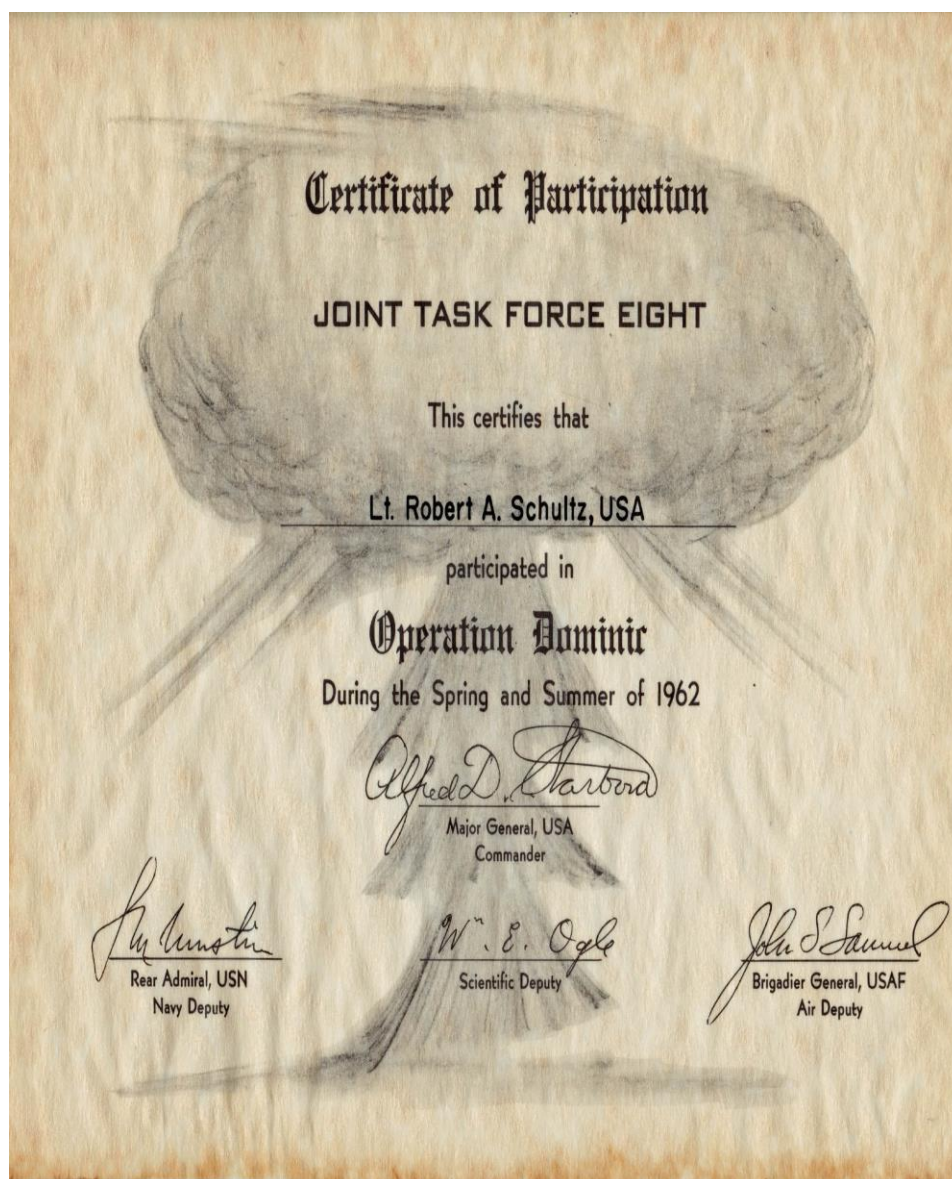
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Certificate of Participation, Joint Task Force Eight, Robert A. Schultz